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שהופקדו לכתחילה

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נתאשר

חוק הפטנטים, תשכ"ז - 1967
PATENTS LAW, 5727-1967

בקשה לפטנט
Application For Patent

אני, (שם המבקש, מענו ולגבי גוף מאוגד - מקום התאגדותו)
I, (Name and address of applicant, and in case of body corporate-place of incorporation)

מולטיטקסט בע"מ מו"לות רב-מימדית, חברה ישראלית, מרח' בן יהודה 142, תל אביב 63402 ישראל

Multitext Ltd. Multidimensional Publishing Systems, Israeli Company of 142 Ben Yehuda St., Tel Aviv 63402, Israel

ששמה הוא   Right of Law

בעל אמצאה מכח הדין
Owner, by virtue of

of an invention the title of which is

(בעברית)
(Hebrew)

התקן ליצירה ולשימוש בטקסט רב-שכבתי

(באנגלית)
(English)

Device for generation and use of multi-layered text

מבקש בזאת כי ינתן לי עליה פטנט

hereby apply for a patent to be granted to me in respect thereof.

* בקשת חלוקה — Application of Division	* בקשת פטנט מוסף — Appl. for Patent of Addition		* דרישת דין קדימה Priority Claim		
מבקשת פטנט from application	* לבקשה/לפטנט to Patent/Appl.		מספר/סימן Number/Mark	תאריך Date	מדינת האיגוד Convention Country
No. _____ מס'	No. _____ מס'				
dated _____ מיום	dated _____ מיום				
P.O.A. :	* יפוי כח : עוד יוגש				

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חתימת המבקש
Signature of Applicant

היום 14 בחודש October שנת 1997
This   of   of the year

For the Applicants,
REINHOLD COHN AND PARTNERS
By : -

טופס זה כשהוא מוטבע בחותם לשכת הפטנטים ומושלם במספר ובתאריך ההגשה, הנו אישור להגשת הבקשה שפרטיה רשומים לעיל.
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התקן ליצירה ולשימוש בטקסט רב-שכבתי

Device for generation and use of multi-layered text

Multitext Ltd.
Multidimensional Publishing
Systems

מולטיטקסט בע"מ מו"לות
רב-מימדית

C. 108259

The Dimension Machine- multi-layer recording method for text display

Invention background

Texts displayed for reading by means of the methods known today are "flat" texts. In other words, any alteration to the text involves deleting a letter, word, sentence or paragraph and replacing them with a different letter, word, sentence or paragraph, or adding text and integrating it into the basic text, so that the display or printing of the result is actually a new text. The displayed or printed result does not preserve or reflect the change and development of the basic text.

In many professions and applications, users need to receive information expressed in several dimensions. This is currently achieved by means of various tables and appendices, but there is no integral display of multi-layer information on a single plane of display.

application formula

The general application formula for applying n dimensions to the text is:

$$Wu(D(V^{(Dv)}),(V^{(Dv)}))n$$

In other words, for every working unit, it is possible to define a value out of a range of values defined for a certain dimension.

The various functions permitted on the text are:

Insert - A function used to insert a new working unit into a certain place in the text, and to assign dimensions and values to the working unit.

End - will end the validity of an existing working unit in the text.

Author correction - will correct words in an existing working unit in the text, or will change dimensions and values for the working unit.

Update(End + Begin)-will insert a new working unit into the text while ending the validity of the former working unit, and will assign dimensions and values to the working unit.

Definition of concepts when using the invention & Valid Values

1. **Dimension** - A variable acting on the text and including information on one related level. The dimensions are not limited in definition, quantity or number of ascribed values per working unit. An unlimited amount of dimensions and values can be defined, meaning that the dimension will cater to a great number of terms. The dimensions do not have to be defined at every moment for every working unit. A working unit that has no defined dimension will be a non-dimensional working unit (D in formula above).

   Examples for various dimension applications:

   1. _Dimension of time_-the variable that defines the validity in time of each working unit.

   2. _Dimension of place_-the variable that defines the place where the text was created.

   3. _Spokesperson dimension_-the variable that defines the spokesperson.

   4. _Reference dimension_-the variable that defines the working unit's foundation.

   5. _Layer dimension_- defines the variable that represents the speech layer of the working unit.

   As many dimensions as needed may be used to define the text to the maximum.

2. **Value** - A quantitative value in the definition range that a dimension receives for a working unit - in other words, the value of a certain working unit. The value does not have to be defined at every moment for every unit (V in formula).

3. **Definition range for value** - The values range that may be used for a dimension value in the text (Dv in formula).

4. **Status of the dimension value** - The status of the given value is binary, and can be either valid or invalid. The method does not support the removal of information on a working unit; rather, it ascribes "invalid" status.

5. **Working-Unit** - The largest text included in the definition range of a single dimension (Wu in formula). Relevant to a working unit with the first type of continuity. (segment)

6. **Text** - Information saved in text file format, constructed of working units.

7. **Word** - A chain of characters separated by dividers on both sides (valid dividers punctuation marks or a space).

8. **Type of value continuity** - Defines the behavior of values in the dimension. The permitted types of continuity are:

First type: There may and must only be one value at any time in the dimension, must be a value. The Begin date of a new value will cause the former value to close on the day of the change minus 1)

Second type: There may, but need not necessarily, be a number of values for each time in the dimension.

About the invention

The "Dimension Machine", the invention constituting the object of the patent application, is a method for recording text in simple text file format, wrapped in outer indices - an index for each dimension. Through the use of the indices, all additional information components (dimensions) with regard to each text value are recorded and saved. When text is shifted as a result of an insert operation, but is not duplicated and does not lose its normal identity, the information regarding the whereabouts of all the text segments is shifted accordingly, as a standard word processing procedure used in performing the update. As a result of this recording method, each text segment is accompanied by indices which include the relevant additional information diagrams.

A user interested in reviewing the various dimensions acquired by the text can choose one of the following methods:

Define the requested dimension before intervening with the text. If, for example, we define the dimension of time in updated legislation texts, we will obtain a display of the law in force as at any requested date X. The display program, based on the characteristics of the recording performed, will automatically choose all segments that correspond to the criterion of: expiration_date>=_X, and only the requested segment will be displayed.

2. Display text changes according to values of various dimension variables. If we ask to view all changes made in a selected passage of text during the period Y, the display program will automatically select all segments concerning the chosen text and display them as a set of windows, a separate window for each segment. We will be able to see the modification of the information along the selected dimension (in this case, the dimension of time). When the dimension is time, it is possible to receive the

modifications in a synchronized display and examine the changes made on a <u>specific date</u> throughout the text. Alternatively, it is possible to select a diachronic display and see all the alterations made to a certain segment of the text within a given range of dates.

3.   <u>A complete visual display on printed paper</u>. In this case, the text will be marked with a different color for each period of validity. For example: a word dating from January 1, 1990 will be printed in color A (the color assigned to the date January 1, 1990). A word dating from January 1, 1991 will be printed in color B (the color assigned to the date January 1, 1991). If a word colored in A expires on January 1, 1991, it will be marked with an overstrike in color B (the color chosen for the date January 1, 1991). By means of this method, the reader will be able to determine the date on which each word became valid, and the date on which it ceased to be valid. By viewing the text which is not marked with an overstrike, the reader will be able to read the full text as at the date of the last update. To return to the legislation text example, at least tdimensions vital to the user will be displayed: dimension of time and dimension of reference (referral to the official publication).

To this day, all legislation publications are "flat text". In other words, they reflect the text as it appeared at the time of the last update prior to printing. The source references are in the form of footnotes. By means of the new recording method, we ascribe to each passage (a text unit with identical characteristics, the smallest unit being <u>one word valid for one day</u>), recorded in text file format, the characteristic dimensions and the values related to them. These, for the dimension of time, are the dates of beginning and end of validity; for the dimension of reference, these are the "reference values" (places where the reference is made and/or to which the reference is applied), and so forth - up to a possible infinity of dimensions wrapped around the text and becoming its natural environment.

Patent application for the "Dimension Machine" recording method

The application is for a patent on a method of recording text in dynamic segments (a change in the dimension value will cause segmentation). This relates to an unlimited amount of different dimensions (the dimensions will be listed in indices external to the text) and allows the recording of different values for each and every dimension. Changes in the text will cause a dynamic update of the position of each segment in the text. The expired value of a parameter in

a dimension is expressed by the recording of an expiration date for the value, so that the information is not lost but kept in the network wrapping the text. The innovative recording method supplies additional information on each text segment, on which the user can base his needs.

Justification

As previously mentioned, no other recording method is known to confer additional information dimensions on recorded text, in simple text file format, with standard word processing functions.

The innovation in the invention enables the recording of text and the supply of information dimensions with various values. According to these values, it is possible to define text derivatives, and dynamically display them according to user characteristic.

Due to the multidimensional recording method of the texts, it is possible to review various levels and dimensions existing in the text. This ability is of the utmost importance in order to correctly and fully express information - a problem which was not solved prior to the presentation of the "Dimension Machine".

Examples

In order to illustrate the recording method, following is an example including:

Two dimensions: dimension of time and dimension of place.

The sample text is divided into working units according to dimensions and values.

No.	Working unit	Dimen.Time	Values	Dimen.Place	Values
1	Inner-city bus fare is	?	Begin-01.01.75 End- ~	?	Tel-Aviv
					London
2	two lira	?	Begin-01.01.75 End-31.12.79	?	Tel-Aviv
3	half pound	?	Begin-01.01.75 End-31.12.80	?	London
4	one hundred	?	Begin-01.01.79 End-31.12.83	?	Tel-Aviv
5	two	?	Begin-01.01.81 End-31.12.89	?	London
6	half sheqel	?	Begin-01.01.83 End-31.12.84	?	Tel-Aviv
7	one hundred and fifty	?	Begin-01.01.85 End-31.12.86	?	Tel-Aviv
8	1.5 new	?	Begin-01.01.87 End-31.12.89	?	Tel-Aviv
9	three	?	Begin-01.01.90 End- ~	?	Tel-Aviv
					London

The table represents the working units in the text and the values of the dimensions. After writing the text, it can be retrieved in computerized media or on paper. Following is an example of the text upon combining the axes (axis for dimension of time and axis for dimension of place)

Time.Dimen	Dimen.Place	Resulting text
Begin-01.01.75 End-31.12.79	Tel-Aviv	Inner city bus fare is two lira
Begin-01.01.75 End-31.12.80	London	Inner city bus fare is half a pound
Begin-01.01.79 End-31.12.83	Tel-Aviv	Inner city bus fare is one hundred lira
Begin-01.01.81 End-31.12.89	London	Inner city bus fare is two pounds
Begin-01.01.83 End-31.12.84	Tel-Aviv	Inner city bus fare is half a sheqel
Begin-01.01.85 End-31.12.86	Tel-Aviv	Inner city bus fare is one hundred and fifty Sheqels
Begin-01.01.87 End-31.12.89	Tel-Aviv	Inner city bus fare is 1.5 New Sheqels
Begin-01.01.90 End-~	Tel-Aviv	Inner city bus fare is three New Sheqels
Begin-01.01.90 End-~	London	Inner city bus fare is three pounds

Questions which users may ask concerning the text in the example are from the repertoire similar to: How much does an inner city bus ride cost on the date (DD MM YY) in a certain city?

As seen in the table, an answer will be retrieved, based on the dimension values connected to the working units.

Following is a partial demonstration on paper.

CLAIMS:

1. A method for rendering text sensitive to dimensions, comprising:
   assigning a value of respective dimension to at least one segment of a text.

2. For use with a text sensitive to dimensions, a method for retrieving a text of interest, comprising
   (i) providing a at least one value of respective dimension;
   (ii) retrieving text of interest having assigned thereto values of dimensions that correspond to the values provided in step (i).

3. The method of Claim 1, wherein each one of said dimensions being selected from the group that includes: time, place, spokesperson, reference dimension and layer dimension.

4. The method of Claim 2, wherein each one of said dimensions being selected from the group that includes: time, place, spokesperson, reference dimension and layer dimension.

5. The method of Claim 1, further comprising: displaying said text as a multi-layer text with the different values marked in respective unique manner.

6. The method according to anyone of Claim 1 or 2, wherein said segment of text is not smaller than a word.

7. A storage medium carrying at least one data file that includes text sensitive to dimensions that was generated according to the method of Claim 1.

8. A system for rendering text sensitive to dimensions, comprising:
   means for assigning a value of respective dimension to at least one segment of a text.

9. For use with a text sensitive to dimensions, a system for retrieving a text of interest, comprising

receiver for receiving at least one value of respective dimension;

text retrieval means for retrieving text of interest having assigned thereto values of dimensions that correspond to said received values.

10. The system of Claim 8, wherein each one of said dimensions being selected from the group that includes: time, place, spokesperson, reference dimension and layer dimension.

11. The system of Claim 9, wherein each one of said dimensions being selected from the group that includes: time, place, spokesperson, reference dimension and layer dimension.

12. The system of Claim 8, further comprising: displayer for displaying said text as a multi-layer text with the different values marked in respective unique manner.

13. The system according to anyone of Claim 8 or 9, wherein said segment of text is not smaller than a word.

14. A storage medium carrying at least one data file that includes text sensitive to dimensions that was generated according to the system of Claim 8.

For the Applicants
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By :